

Claims

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1. Method for transferring a wafer (6) into and out of a thermal treatment chamber, for treating one wafer at a time, said treatment chamber being associated with a thermal treatment installation (10) which comprises a loading chamber, out of or into said loading chamber which has a temperature differing from that of said thermal treatment chamber, loading means and transport means being provided therefor in the loading chamber, characterised in that in the loading chamber one of a set of wafers (6) and a ring (1) are combined to give, or separated from, a wafer/ring combination by the loading means and individual wafer/ring combinations are individually introduced into and removed from the thermal treatment chamber by the transport means.

2. Method according to Claim 1, characterised in that during movement of the wafer/ring combination the ring is handled mechanically and the wafer bears on support points on said ring.

3. Method according to Claim 1, characterised in that during movement the ring and the wafer are supported by an auxiliary element, which auxiliary element is handled mechanically.

4. Method according to Claim 3, wherein vacuum is used in the transport means on the contact surface between wafer (6) and auxiliary element in order to hold the wafer in place.

5. Method according to Claim 1, wherein in said thermal treatment installation the essentially horizontal wafer surrounded by the ring is brought a slight distance of less than 1 mm away from, or in contact with, a horizontal and essentially flat heated reactor section in said thermal treatment installation by vertical movement of the wafer with respect to the heated reactor section.

6. Method according to Claim 1, wherein the essentially horizontal wafer is moved a vertical distance away from the ring in said thermal treatment chamber.

7. Method according to Claim 6, wherein contact-free treatment of the wafer takes place in said thermal treatment chamber, the wafer being moved by a gas stream a vertical distance away from the ring (1).

8. Method according to Claim 1, characterised in that the thermal treatment installation (10) comprises a transport chamber which is connected to the loading chamber and to the thermal treatment chamber.

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9. Method according to Claim 8, wherein the wafer (6) is surrounded, without contact, by the ring (1) in said transport means.

10. Method according to Claim 9, wherein the wafer (6) is a vertically spaced from the support points (4) of the ring (1) by a gas stream (13, 14).

5 11. Thermal treatment installation/ring combination comprising a loading chamber, loading means, transport means and a thermal treatment chamber for carrying out a thermal treatment on one wafer at a time, characterised in that the transport means are equipped to move individual wafer/ring combinations from the loading chamber into the thermal treatment chamber and vice versa and in that the treatment chamber is designed to  
10 accommodate said ring surrounding the wafer.

12. Thermal treatment installation/ring combination according to Claim 11, characterised in that the ring is designed to support said wafer at least during transferral.

13. Thermal treatment installation/ring combination according to Claim 12, characterised in that the ring is mechanically joined to the transport means.

15 14. Thermal treatment installation/ring combination according to Claim 11, characterised in that the treatment chamber is designed to accommodate an auxiliary element for supporting the ring and the wafer at least during transferral.

15. Thermal treatment installation/ring combination according to Claim 14, characterised in that said auxiliary element is mechanically joined to the transport means.

20 16. Thermal treatment installation/ring combination according to Claims 11 - 14, characterised in that said ring is provided with heating means.

17. Thermal treatment installation/ring combination, wherein the thermal treatment installation (10) comprises a treatment chamber delimited by two opposite sections (11, 12), at least one of said sections being provided with a gas supply for positioning a wafer (6)  
25 floating between said sections, said ring (21, 31) being embodied to be placed between said sections,  
characterised in that

30 in the operating position the distance between said two sections (11, 12) at the location of said ring essentially corresponds to the thickness of said ring and in that at least three radial gas passages (22) are arranged between said ring (21, 31) and the relevant section (11, 12).

18. Thermal treatment installation/ring combination according to Claim 17, wherein said passages have been made in said sections (11, 12).

19. Ring combination comprising a ring (31) and a support ring (41), the internal

diameter of which is larger than the external diameter of the ring (31) and which is provided with support elements (34) which extend within the inner circumference of said ring (31).

20. Ring combination according to Claim 19, wherein said support elements comprise pins (34) which are accommodated in the grooves (32).

5 21. Ring combination according to Claim 20, wherein said support elements (34) are provided with internal channels which at one end open onto the contact surface with the wafer and at the other end are in communication with an internal channel in the auxiliary ring (41), which channel is connected to vacuum means in order to produce a vacuum in the channels.

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